DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 17, 2012

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending August 17, 2012

Board staff member T. Hunt and outside expert D. Boyd were on-site to complete training.

Tank Farms: The contractor identified anomalous conditions in the annulus of double-shell tank AY-102 while performing their periodic inspection with a remote camera. The anomalies included increased corrosion on the outside of the primary tank, a mound of dry material near the bottom of the riser that was used for the inspection, and white material on the refractory concrete pad that supports the primary tank. No liquids were seen in the annulus, but a sample of the solid material indicated that it had contamination levels consistent with tank waste. The contractor has initiated an assessment to determine if the contamination is the result of past operations, a past leak, or a current leak. They are also checking leak detector equipment more often and they are developing plans to conduct extensive visual inspections of the tank.

The One System Integrated Project Team, which is composed of both Tank Farms and Waste Treatment Plant (WTP) contractors, sent a letter to the Office of River Protection (ORP) recommending that olivine be used to cut a large hole in the concrete dome of single-shell tank (SST) C-105. The large hole is needed to install a Mobile Arm Retrieval System (MARS) in the tank. The letter included responses to the many technical questions raised by ORP staff concerning potential olivine-induced erosion of the Tank Farms and WTP systems. Some of the questions raised by the ORP staff were initially identified in 2010 before garnet was used to cut the dome in SST C-107 for the first use of a MARS. These questions have yet to be answered to the satisfaction of the reviewers, but they believe these issues need to be addressed before more abrasive material is mixed with the tank waste.

The ORP Safety Basis Review Board recommended that ORP approve the contractor's request to change the safety basis and allow waste leaks from the safety-significant (SS) rotary union (RU) of the MARS in SST C-107 (see Activity Report 8/10/12). They will recommend that ORP approve the change because the leaks will not impact workers or public safety, these small leaks will not generate sprays, and the leakage will drain back into the tank.

WTP: The contractor began implementing the Reliability Validation Process (RVP), which will review major processes and conduct detailed reviews of the design (see Activity Report 7/27/12). The reassignment of personnel from across the project occurred this week and management has suspended all production work on the design of the Pretreatment facility and suspended work on several key systems in the High Level Waste facility. The anticipated completion of the RVP activities is the end of fiscal year 2013.

Sludge Treatment Project: The contractor extended the final design review of the sludge removal system by one week (see Activity Report 8/10/12) but still plans to have all key comments resolved by the end of this month. A reviewer commented that additional standards are needed for the SS instrumented systems, but neither ISA 84.00.01 nor DOE STD-1195 were noted as required standards. The contractor plans to have the final design report issued within three months.